



WATER DRAW/ MASTER METER “PETROL” COUNTER

MOD

WDMM

INSTALLATION, USE AND SERVICE MANUAL

PETROL INSTRUMENTS S.r.l. - 04011 APRILIA (LT) - ITALY



INSTALLATION, USE AND SERVICE MANUAL

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1. GENERAL DESCRIPTION

1.1 Introduction

The electronic register will be referred to hereafter as "WDMM".

PETROL INSTRUMENTS S.r.l. is not responsible in cases in which:

Operating procedures for use and maintenance of the WDMM described in the manual are not respected

Damage verified after repairs or modifications of the WDMM undertaken by unauthorized personnel or after normal deterioration of the WDMM

No parts of this Manual may be reproduced by any means, transferred, or copied for public and/or private purposes without prior authorization by PETROL INSTRUMENTS S.r.l.

The equipment may not be used for purposes other than those intended.

This Manual is intended to prevent hazardous situations for the WDMM users or environmental situations that could damage the equipment or its components.

This Manual is an integral part of the equipment.

For proper and safe use of the equipment, carefully read the instructions in this Manual before using or servicing the equipment and keep it where it is easily available for future reference.

This way, the operator will be informed of all equipment-related problems.



1.2. Guaranty And Responsibilities

PETROL INSTRUMENTS S.r.l. guarantees that this product is free of defects in materials and workmanship for a period of 12 (twelve) months beginning from the DATE OF DELIVERY from the premises of PETROL INSTRUMENTS S.r.l..

The guarantee covers any faulty parts and components due to improper manufacturing or assembly, but it does not cover faults arising from improper installation, wiring or calibration carried out by third parties or resulting from improper use of this equipment.

PETROL INSTRUMENTS S.r.l. DISAVOWS ANY OTHER GUARANTEE BEYOND THE LIMITATION, UNLESS EXPRESSLY AGREED.

In the eventuality that this product is defective within the guarantee period, PETROL INSTRUMENTS S.r.l. reserves the right to repair and/or replace any part that, in their unimpeachable judgment, becomes defective.

The guarantee for the components and workmanship is understood as from the PETROL INSTRUMENTS S.r.l. factory in Aprilia; any intervention by the client will be explicitly requested and will be debited for transfer and holding.

Except as expressly prohibited by law, PETROL INSTRUMENTS S.r.l. denies any responsibility for loss or damage arising from use of this product, whether direct, indirect, accidental, or deriving from improper use of the product.

1.3. Carriage And Handling

PETROL INSTRUMENTS S.r.l. uses packaging guaranteeing the integrity and maintenance of the WDMM during transportation until consignment to the client; in case it is not immediately used by the client, it is necessary to store packaging in a dry area sheltered from weather. The individual WDMM is supplied with packaging in wooden boxes.

The WDMM may be moved using a hand cart or manually.

1.4. Product Description

The WDMM is a completely programmable electronic register, usable for Water Draw or Master Meter applications for any type of meter with a pulse generator.

The WDMM is mainly composed by n.1 F112-P counter, refer to the F112-P manual for any information on F112-P operation and description (WDMM-01 and WDMM-02) or by n.1 F112-P and n.1 F110-P, refer to the F112-P and F110-P manuals for any information on F112-P and F110-P operation and description (WDMM-03).



1.5. Intended Use And Forbidden Use

INTENDED USE

The WDMM was constructed for the control and measurement of liquids and for installation in classified locations (with danger of explosion or greater risk of fire), except for special executions requested by the client.

FORBIDDEN USE

Given the specificity of use of the WDMM, other uses beyond those described in the point above are not considered.

In the case of other identified uses, it is necessary to contact PETROL INSTRUMENTS S.r.l. to have confirmation of the appropriateness of the WDMM for different uses than those provided for.



CAUTION!

INSTALLATION AND MAINTENANCE OF THE EQUIPMENT MUST BE
PERFORMED
BY QUALIFIED AND AUTHORIZED PERSONNEL.



DANGER
Electric Voltage

IT'S ABSOLUTELY PROHIBITED TO OPEN THE WDMM WHEN POWER IS ON
If necessary, wait at least 5 minutes after shutdown of the power supply before
opening the
WDMM and verify that it is no longer powered.



1.6. Hazards

Danger of explosion

Do not open the WDMM in the presence of a potentially explosive atmosphere.



Electrical shock hazard

Do not open the WDMM when power is on.

Danger of crushing

Open the WDMM making sure that the cover may not fall back on the base.



Danger of fire

Do not open the WDMM when power is on





1.7. Safety Information

To be certain of correctly using the WDMM, immediately read this information on safety and the user's manual closely.

After having read the information on safety, always keep it on hand for later consultation.

In order to prevent any danger of accident, the following precautions are essential:

- Read and follow the instruction manual for installation, use and maintenance, furnished with the WDMM, and respect all the instructions and warnings.
- Activate the WDMM only after having verified the adequacy of installation and conformity to the notes contained in this manual. Installation must be performed by qualified personnel.
- Verify that the labels containing information on safety are always very visible and in good condition.
- Do not power supply the WDMM unless it is completely and properly installed.
- Power supply the WDMM with the type of electric power supply connected to the plate. In case of doubt regarding the type of power supply available, consult the technical assistance service.
- If the WDMM malfunctions, disconnect the power supply immediately avoiding touching the metal parts of the equipment. Consult the qualified personnel for an inspection before re-use.
- Work only with all guards in position and in perfect efficiency
- Do not use water to extinguish fires in the switch box and/or electrical equipment.



- It is necessary to establish a regular program of inspections and maintenance.
-



Additionally:



Obligatory safety shoe

Obligatory protective gloves

Wear uniforms appropriate for the type of work and in perfect condition



1.8. Warnings

When using the WDMM, it is important to observe the warnings below.

Avoid touching the internal parts of the WDMM.

The maintenance or inspection must be undertaken only after having deactivated the power supply and waiting the time specified.



Avoid pulling, stressing, crushing or storing heavy objects on the cables, because this may cause damage or electrical shock.



Avoid modifications that may cause wear and/or consequent damage due to improper use.

Avoid storing, installing or operating WDMM in any of the areas listed below, as this may cause electrical shock, fires or damage to the product.

- Areas with temperature or humidity beyond the limits specified in the characteristics.
- Areas subject to blows or vibrations beyond the limits specified in the characteristics.

When performing installation in one of the areas below, it is important to provide the system with appropriate and adequate countermeasures, otherwise it is possible that damage may be caused by improper use.

- Areas exposed to static electricity or other disturbances.
- Areas subject to strong magnetic or electromagnetic fields.
- Areas exposed to radioactive elements





2. INSTALLATION MANUAL

2.1. Receiving The WDMM

After receiving the WDMM it is advisable to first check the external packing to check for any parts

damaged during shipping: if there is any damage notify the shipper immediately. If there are any missing or defective parts contact PETROL INSTRUMENTS S.r.l. specifying the order number and nature of the problem.

Before installing the unit it needs to be kept in its original packing and kept away from rain and other bad weather conditions.

2.2. Recommendations Before Use

2.2.1. Mechanical

To ensure correct operation of the electronic register, carefully read the following recommendations before installing the product:

- Make sure the base (or stand) is solid enough to support the weight (20 Kg.)
- Connect the electronic register so that the front door of the case can be easily opened (more than 90°) to make circuit board maintenance and replacement operations easier.
- Do not position the case too high so that the operator has a good view of the display and can easily access the selectors/buttons
- In warm environments, the electronic register should be placed far from direct sunlight. The external case temperature must never exceed 55 °C to ensure correct operation of the internal electronics
- Do not use the cover of the rack for cables fixing (maintenance could be difficult).



2.2.2. Electrical

To ensure correct operation of the electronic register, carefully read the following recommendations before installing the product.

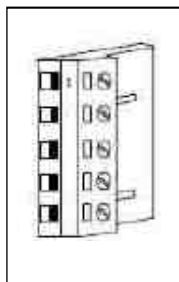
- Make sure that there is isolation between the DC and AC cables: for the electronic register wiring use the conduit indicated in the paragraphs below (see the table below)
- It is advisable to connect the pulser before cable the power supply
- Make sure that all the connectors and that all the screws have been correctly tightened.
- Make sure the earthing point is as close as possible to the electronic register (avoid using steel structures and piping as the earthing points).
- Make sure the resistance between the electronic register and earthing point is not over 2 ohm



2.3. Installation

2.3.1. Power Supply 220VAC Wiring

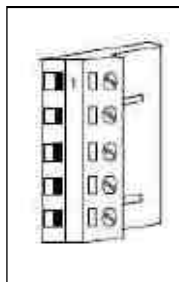
Terminal 1



8	Neutral (220 VAC)
9	Line (220 VAC)
10	Ground

2.3.2. Pulse Generator Wiring

Terminal 2

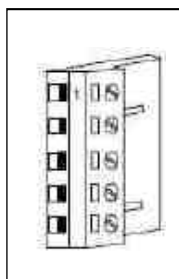


5	Power (Terminal 20 on pulser)
6	Signal (Terminal 22 on pulser)
7	Ground (Terminal 22 on pulser)

Note: on WDMM-03 2 pulse generator terminal board are available

2.3.3. Detector Switches Wiring

Terminal 3



1	Switches (Common)
2	Switch 1
3	Switch 2
4	Switch 3 (not available on WDMM-01 Version)
5	Switch 4 (not available on WDMM-01 Version)

Note: Available on WDMM-01 and WDMM-02 only



3. MAINTENANCE MANUAL

3.1. Divestment Of The Product

The WDMM is an electronic product that contains substances potentially dangerous for the atmosphere and the human health. As indicated from the appropriate symbol printed over the product (see figure below), the WDMM does not have to be disposed like a normal city or industrial refusal but disposed in one separate collection for this type of refusals in compliance with the laws in matter.





4. OPERATIONS MANUAL

4.1. Power On Of The Register

On power on, the WDMM display performs the test phase.

4.2. Operation Modes

4.2.1. General description

Two different operation modes have been foreseen by the WDMM, each of which is characterized by specific management of operating interface.

4.2.2. Water Draw Mode

The Water Draw Mode (available only on WDMM-01 and WDMM-02) is selected by the operator when water draw operation has to be performed.

The prover sphere moves in the forward direction and hit the first detector (DS1), the impulse of DS1 latch the control/inputs relay (normally open), that remain latched until another impulse is applied, allowing the recording of the pulses on the electronic counter.

When the sphere hits the second detector (DS2), it send an impulse to the control/input relays that open the contact and stop recording of the pulses on electronic counter.

Volume measured from electronic counter is the volume between the two switches of the prover.

This operation is also carried out in the reverse direction i.e. at the reverse movement of the sphere, setting the selector accordingly.

4.2.3. Master meter mode

The Master Meter mode is selected by operator when the Meter has to be used as Master Meter.



4.3. Water Draw procedure

Working in Water draw mode, the following steps have to be followed

- 1) Put selector "START" on the Sphere detector to be used as start
- 2) Put selector "STOP" on the Sphere detector to be used as stop
- 3) Put selector "MASTER METER/WATER DRAW" on "Water Draw"
- 4) Push Reset Button
- 5) Start the sphere for the first run
- 6) After 1st run, move selector "START" and selector "STOP" accordingly and push reset button again to measure on backward direction

During water draw operation the light "A" is switched on

IMPORTANT!

Do not select the same sphere detector number for Start and Stop

4.4. Master Meter procedure

Working in Master Meter mode (WDMM-01 and WDMM-02), the following steps have to be followed

- 1) Put selector "MASTER METER/WATER DRAW" on "Master Meter"
- 2) Use the meter as a normal Master Meter

Working with WDMM-03, after starting both Master Meter and PD meter to be calibrated, just follow the below steps:

- 3) Switch on WDMM-03 through relevant selector
- 4) Reset to 0 both displays through pushing "Reset" buttons
- 5) Start counting pulses through relevant selector
- 6) Both displays start to count, after passing necessary volume, stop pulse counting through relevant selector and compare the two volumes

For WDMM-03 only this operation mode is available.



5. VERSIONS

WDMM	-	XX
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01	n.2 Detector Switches
02	n.4 Detector Switches
03	n.2 Totalizers



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from 50 to 10.000 liters**



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Size from 1" to 16"**



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